

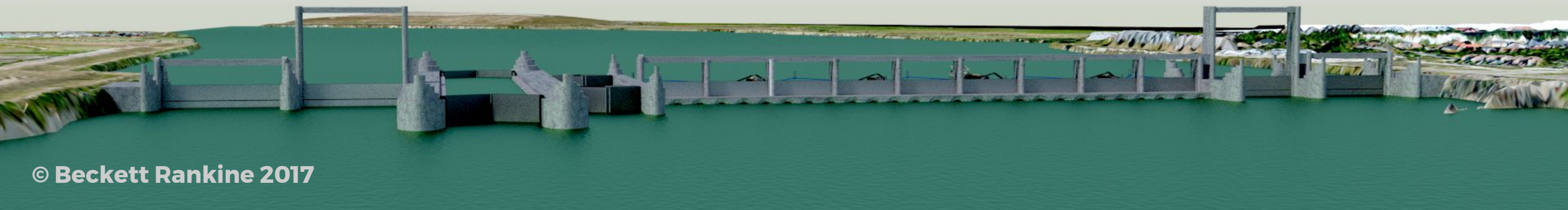


An Alternative Vision for the Thames

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Introduction



Summary of Thames Vision goals and priority actions

PORT OF LONDON:
MORE TRADE.
MORE JOBS

The busiest sea Port of London handling 50-60 million tonnes of cargo each year, on the doorstep of Europe's biggest metropolitan consumer market.

- Sustain private sector investment
- Improve navigational access to the port
- Improve rail and road access to port operations/terminals, including:
 - Lower Thames Crossing
 - London Thames Gateway
- At least three further Thames crossings to the east of Twickenham to ease the flow combination of river and rail by 2022
- Widening of the A12, by the end of 2018
- Closure of river crossings affecting operational terminals, by 2020
- Deliver efficient, effective and sustainable FLA harbour and port services to support growth

INLAND FREIGHT:
MORE GOODS OFF ROADS ONTO THE RIVER

More goods and materials shewards on the river - every year over 4 million tonnes carried by water - taking over 500,000 lorry trips off the region's roads.

- Double underlying intra-port freight to over 4 million tonnes (up from 2 million tonnes) as a Champion the Thames is a
- Champion the Thames is a default choice for moving goods and materials from infrastructure projects close to the river
- Manage or deactivate bulky cargo handling facilities, with at least five additional facilities brought into operation by 2025
- Extend the River Corridor to water freight movements by 2025
- Develop the Thames Skills Academy to provide the skills needed on the Thames

PASSENGER TRANSPORT:
MORE JOURNEYS

Double the number of people boating by river - reaching 20 million commuter and tourist trips every year.

- Make more efficient use of plant and river space, including new timetabling to manage peaks in traffic
- Innovate to achieve more passenger journeys at current low peak times
- Develop and implement a long-term port strategy
- Convene a consortium forum to address issues of watch boat growth in passenger transport
- Secure the infrastructure required for growth in the transport of passengers and goods on the Thames

SPORT AND RECREATION:
MORE PARTICIPANTS

Greater participation in sport and recreation on and alongside the water.

- Ascertain current levels of sport participation and work towards increasing participation on and alongside the water
- Extend sport opportunity zones on the Thames
- Realise new visitor moorings and publicise the availability of visitor moorings effectively
- Join up the Thames Path from source to sea

ENVIRONMENT AND HERITAGE:
IMPROVED TIDAL THAMES ENVIRONMENT

The river the cleanest since the Industrial Revolution, with improved habitats and awareness of heritage.

- Build and bring into operation the Thames Tideway Tunnel by 2021
- Improve water quality by a range of measures including a reduced litter in the river
- Improve biodiversity of sites inland, and the connections between them
- Identify and improve access to, and appreciation of, the historic environment along the Thames
- Encourage adoption of new and green technologies to reduce the port's environmental impact

COMMUNITY AND CULTURE:
MORE PEOPLE ENJOYING THE THAMES AND ITS BANKS

A riverscape which is a magnet for ramblers, historians, artists and others, whether living nearby, on the river or travelling from further afield.

- Enhance access to information about the Thames
- Educate local school children about the Thames
- Create new appropriate residential moorings accommodating suitable moorings
- Explore development of a Thames board for culture, heritage and quality of life

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The Vision document is intended to support a wider Vision project whereby various events are being held to further develop the Vision together with an implementation strategy.

The PLA's Thames Vision is very welcome, especially with its ongoing public engagement; however it is disappointing that the Vision contains nothing that could be described as 'visionary'. Instead it reads more like a Business Plan. At its core the PLA's Thames Vision has six goals, in summary they are:

- Inland Freight - To double the volume of intra-port freight handled on the river to over 4m tonnes a year.
- Environment & Heritage - To further improve the river's water quality, to improve biodiversity and to reduce the port's environmental impact.
- Passenger Transport - To double the number of passenger trips on the river to 20m a year.
- Sport & Recreation - To have greater participation in sport and recreation on and alongside the river.
- Community & Culture - To increase the attractiveness of the riverside for local communities and those visiting from further afield.
- Port of London - To have more trade and more jobs with an increase in cargo handled to 60-80m tonnes a year.

**See Reference section for links to all referenced documents*



Introduction



THE VISION FOR THE
TIDAL THAMES
JULY 2016



Source: Google Earth

Introduction

These six goals are certainly worthwhile but they are also bland; the Vision states what the PLA currently does and says that in the future they will do the same but more of it. This absence of visionary insight is perhaps understandable; the Vision project was very much a committee lead process. There was extensive public consultation and no doubt there were some radical ideas proposed but ultimately a safe and non-controversial, vanilla document was produced. One could argue that it was a mistake calling it a 'Vision' since that leads the reader to expect something visionary, 'Plan' would have been a better title.

I mentioned to Pat Fitzsimons, Director of Thames Estuary Partnership, my disappointment at the lack of vision in the Thames Vision; Pat responded by asking whether I could do any better. It was a fair challenge and so, after a few weeks of contemplation, here it is; my Alternative Thames Vision.

To start at the beginning I believe that to avoid consideration of London's future flood defence in any vision for the Thames is to ignore both the greatest future challenge but also the greatest opportunity. The decision of what London's future flood defence will be should be considered long before 2035 since the decisions made on flood defence will in turn influence many other decisions. For this reason this Alternative Vision has a longer timescale up to 2050 so that it includes consideration of London's future flood defences.



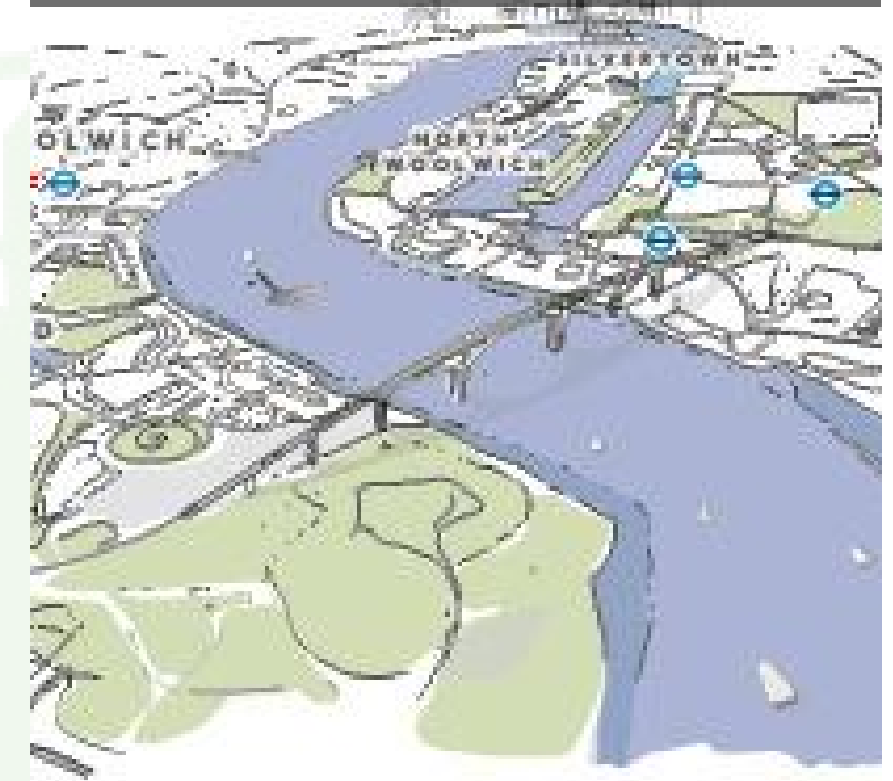
Source: Google Earth

Where to Start?

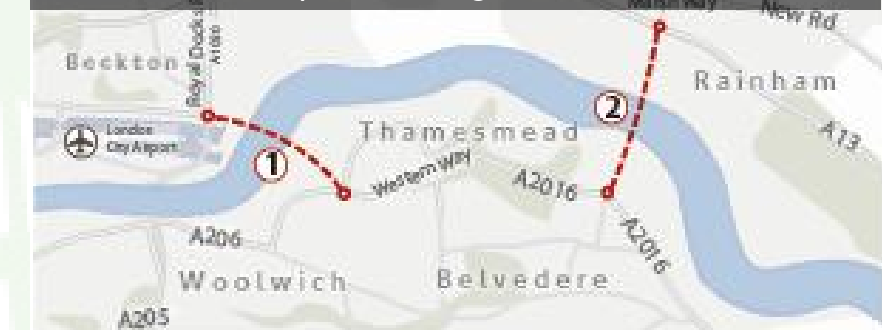
Having set a timescale for a vision the next consideration needs to be an analysis of the challenges and issues the river faces; what problems is the vision required to solve? Here are my top twelve issues to be addressed, they are not necessarily in order of importance.

1. **River crossings in East London.** As cargo handling and associated riverside industry continues to move down river London itself is also spreading east. From Canary Wharf, to the Royal Docks and now Barking Riverside the north bank is being converted by residential, office and retail developments. On the south side the Greenwich Peninsula, Charlton, Woolwich and Thamesmead are undergoing the same regeneration. The process is due to continue further downstream and these new developments need new cross-river connections.
2. **Future Flood Defences.** The combination of sea level rise and the aging Thames Barrier will, in the 2030s, require planning for a new solution for the defence of London against flooding. The existing defence structures were built in the 1970s and will by then be 60 years old. The Barrier itself will require replacement some time between 2050 and 2070.
3. **Plastic Litter.** Plastic pollution of the sea has become a serious problem with both seabirds and fish now being found to have, often lethal, quantities of plastic in their stomachs. From the fish this toxic plastic is now found in our food chain. While this is a worldwide problem the Thames, as a major metropolitan river and is a significant contributor to plastic pollution of the lower Thames fisheries and the sea.
4. **Freight Facilities in London.** To achieve the PLA's desired doubling of inland freight handled in London requires wharf facilities. The GLA have the Safeguarded Wharf provisions in the London Plan but they have had only minimal success in increasing wharf capacity; the process has been more of a managed retreat from city centre cargo handling. The London Plan's safeguarding policy needs a rethink if it is to enable an increase in capacity.

Gallions Reach High Level Bridge



Proposed Bridge Locations



Removing Litter from the Thames shore



Where to Start?

5. **Lack of Boatyards.** The successful growth in passenger trips on the river, which is associated with an increase in boat numbers, means there is an increasing demand for boatyard facilities. However there is only one London boatyard at Bay Wharf in Greenwich. The GLA has plans for a new boatyard at Albert Island in Newham. If, for any reason, this boatyard is not delivered then another site needs to be brought forward as a matter of urgency.
6. **More Passenger Piers.** Increasing passenger trips and the spread of London eastwards means that there is a need for new piers. Many passenger piers are built because a particular developer wants one and is willing to pay for it. New pier locations should not be determined on this ad hoc basis.
7. **Obsolete Infrastructure.** Most notable in their obsolescence are some of the older passenger piers which fall well short of best practice in their accessibility.
8. **Wash.** Increasing use of the river results in an increase in conflicting interests. The successful expansion of the Thames Clippers service upstream to Putney has, inevitably, resulted in an increase in complaints about wash from houseboat owners. To date there has been little investigation of whether this conflict can be better managed.
9. **Increasing Navigational Risk.** Navigational risk can be viewed as the elephant in the room. The Thames through central London is narrow, fast flowing and obstructed by many bridge piers and moorings; certain sections of the river are risk hot spots and vessel contacts or near misses are a regular occurrence. The potential consequences of a heavy freight vessel contact with a passenger vessel are all too obvious. It is not possible to double both freight and passenger movements without also increasing navigational risks – unless significant control measures are introduced.

Albert Island Boatyard



London Bridge City Pier



Wash and Damaged Campshed



Source: Google Earth

Where to Start?

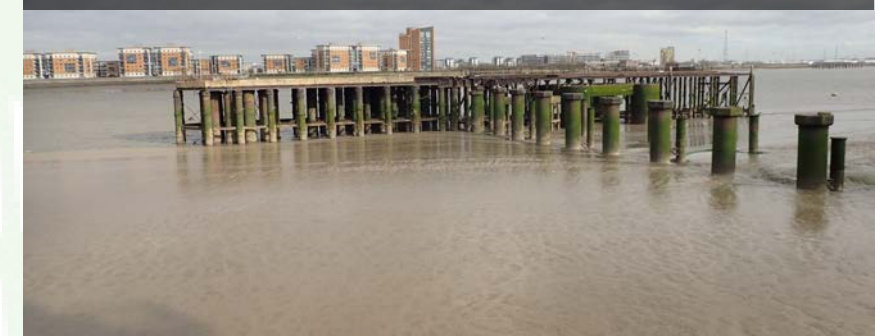
10. **Discontinuous Riverside Path.** There have been many improvements in the riverside path but much still remains to be done, especially on the City of London's frontage.
11. **Heliport in Wrong Location.** London has just one heliport which is on the river's edge in Battersea. The site is squeezed between residential buildings, it is too small, does not have refuelling facilities and does not have a passenger pier. All these deficiencies could be resolved if the heliport was moved downstream to East London.
12. **Derelict Structures.** There are many derelict jetties, campsheds and other structures on the river; some are just pile stumps, some jetties have dilapidated decks too fragile to be walked on. Some have owners for whom the structure is a liability while in other cases there is no apparent owner or ownership has reverted to the PLA. There should be a means of either finding a use for these structures or else for funding their removal.

Each of these twelve issues are considered in more detail in the sections that follow.

Battersea Heliport



Derelict Structure at Thamesmead



Downstream of the Thamesmead Jetty



Source: Google Earth

The Issues



River Crossings in East London

The need for additional East London Crossings is well established and TfL already has already initiated schemes for the Silvertown road tunnel, Gallions Reach to Thamesmead DLR tunnel and a new foot and cycle bridge at Rotherhithe, although that scheme is still in the pre-feasibility stage. There are also longer term proposals for a bridge at Gallions Reach and a lower Thames crossing east of Tilbury. These longer and more exposed bridges may require weather protection to be provided for pedestrians.

While tunnels beneath the river are relatively straightforward to construct, if expensive, they are not suitable for use by pedestrians or cyclists who need bridges. Bridge building in East London is complicated by the need to provide for passage by large ships which can have an air draft in excess of 40m. Unless the river is to be closed to larger ships any bridge crossing has to either be above circa 50m, as the Dartford Bridge is, or else has to be designed to open, as Tower Bridge does or be a Transporter bridge. Transporter bridges are in essence like ferries in that carry a package of pedestrians or vehicles. This intermittent operation and high operational costs are serious limitations.

Opening bridges have the attendant problem that there has to be absolute certainty that they will indeed open when required. To provide this certainty the bridge may have to be opened before a departing ship leaves its berth. So in the case of the proposed Rotherhithe Bridge a cruise ship leaving its berth alongside HMS Belfast would need to know that both Tower Bridge and Rotherhithe Bridge were open before she cast off. Once under way there is no berth where the ship could stop before Rotherhithe and there is nowhere to lay afloat once the tide falls; hence the need for certainty that she can pass the bridge.

Unfortunately the need for Rotherhithe Bridge to open before the ship departs means that the bridge would be open for circa 45 minutes; and as the time of the tides varies this open period could at times occur during the morning or evening peak for commuter traffic. This is a serious disadvantage for an opening bridge.

Whether a guaranteed fail safe design of opening bridge can be produced is uncertain. An alternative might be a design similar to Tower Bridge whereby when the bridge is open users can pass via a high level walkway as an alternative.

One other possibility, for the longer term, is control of the tide level so that a ship trapped by a malfunctioning bridge would not be at risk of grounding. More of this in the next section.

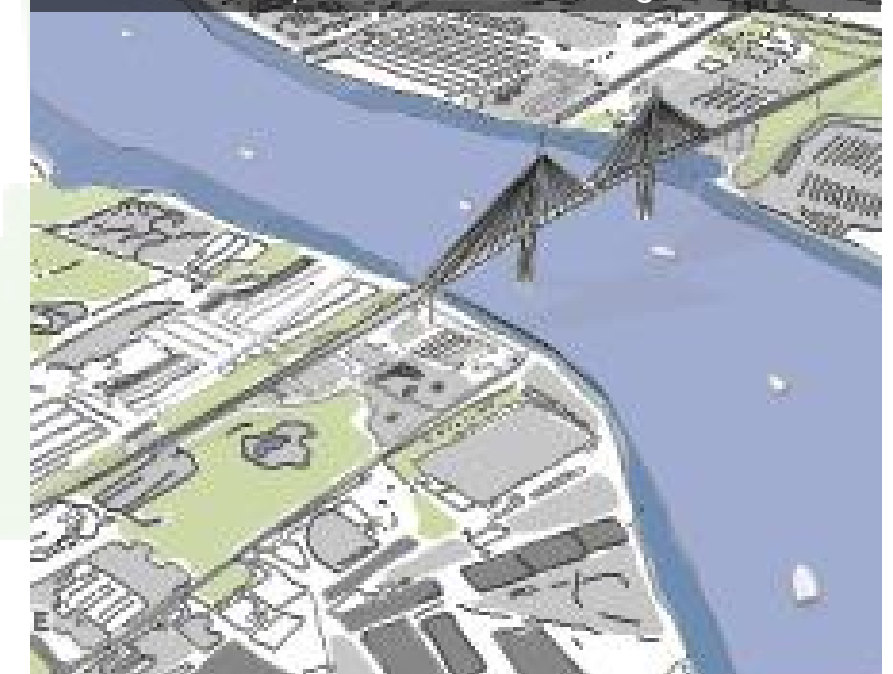
Proposed Rotherhithe Bridge Bascule Detail



Proposed Rotherhithe Bridge



Proposed Belvedere Bridge



Source: Google Earth

Future Flood Defences

In 2012 the Environment Agency (EA) carried out an assessment of the Thames flood defences and produced the Thames Estuary 2100 plan (TE2100 Plan). The Plan concluded that the current defences were sufficient until 2034 but there would then need to be raising of the defences. The Thames Barrier was thought to be sufficient until 2050 but would then need replacement although that replacement may be able to be deferred until 2070. Various options for replacement barriers further downstream are considered in the TE2100 Plan but no conclusions are drawn as to the preferred site or solution.

One interim option being considered is to raise the flood walls through London by between 600mm and 1m. New structures fronting the river currently have to have to be designed so as to facilitate this future raising. There are two disadvantages to this solution, firstly it would have serious environmental consequences and through much of central London pedestrians on the riverside walk would not be able to see the river, and they would not be able to see over the flood defence wall. This is unlikely to be acceptable, especially along the listed Victoria Embankment.

The second disadvantage is the cost. The Thames Barrier was built in the 1970s because it was a cheaper solution than raising the defences through London all the way up to Richmond, the same will be true in 2040. The greatest cost benefit from a barrier arises when it is located so as to maximise the length of river wall that it substitutes. However a barrier is an impediment to shipping and while various locations were considered for the Thames Barrier it was sited at Woolwich because there was at the time little shipping above it but much more below. If a similar assessment were done today then a new barrier would be located further downstream. In particular it would be sited seaward of the Royal Docks, Barking Creek and Dartford Creek so that the barriers for those three tributaries did not have to be replaced.

The Thames Barrier



Dartford Creek Barrier

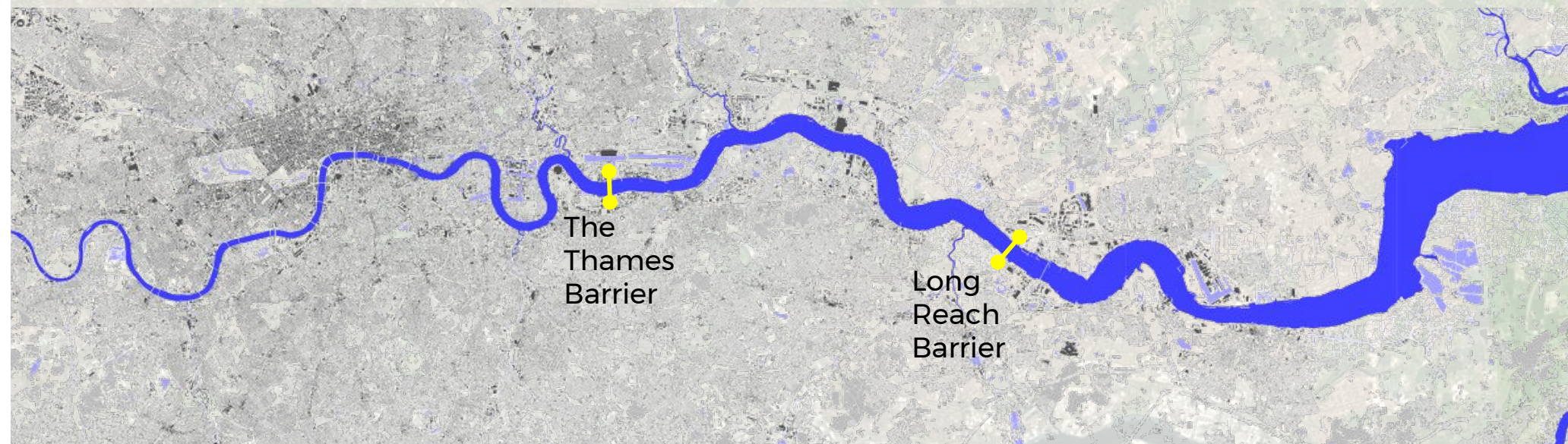


1960s proposal for a Barrier at Woolwich with a lock



Source: Google Earth

Future Flood Defences



The logical location today for a next generation barrier is Long Reach, below Dartford Creek but above the busy shipping berths at Purfleet. Long Reach is also a straight section of river so the new structure could be located well away from bends in the river. Long reach is one of the options considered in the TE2100 Plan.

What form should a new defence barrier take? In the late 1960s a number of options were considered for the Woolwich Barrier before the rising sector solution was chosen, some of the options considered included a ship lock alongside the floodgates to allow ships to pass when the barrier was closed. In the final design the lock was omitted to save cost.

A similar option appraisal will be required again, bearing in mind advances in technology over the last 50 years or so. Not considered in the TE2100 Plan is the possibility of construction a half tide barrage combined with shipping locks. There could be significant non flood defence related benefits from such a solution.

Today a half tide barrage could not be contemplated as there are, during times of storms, too many sewage overflows into the river that need tidal action to clear them. However once the Thames Tidal Tunnel is completed in 2022 the great majority of these storm overflows will be intercepted and will not reach the river. The need for tidal flushing will be much reduced.

Vessels using the High Water to Travel Upstream



The HMS Ocean, at Greenwich



Piling On The Thames



The Issues

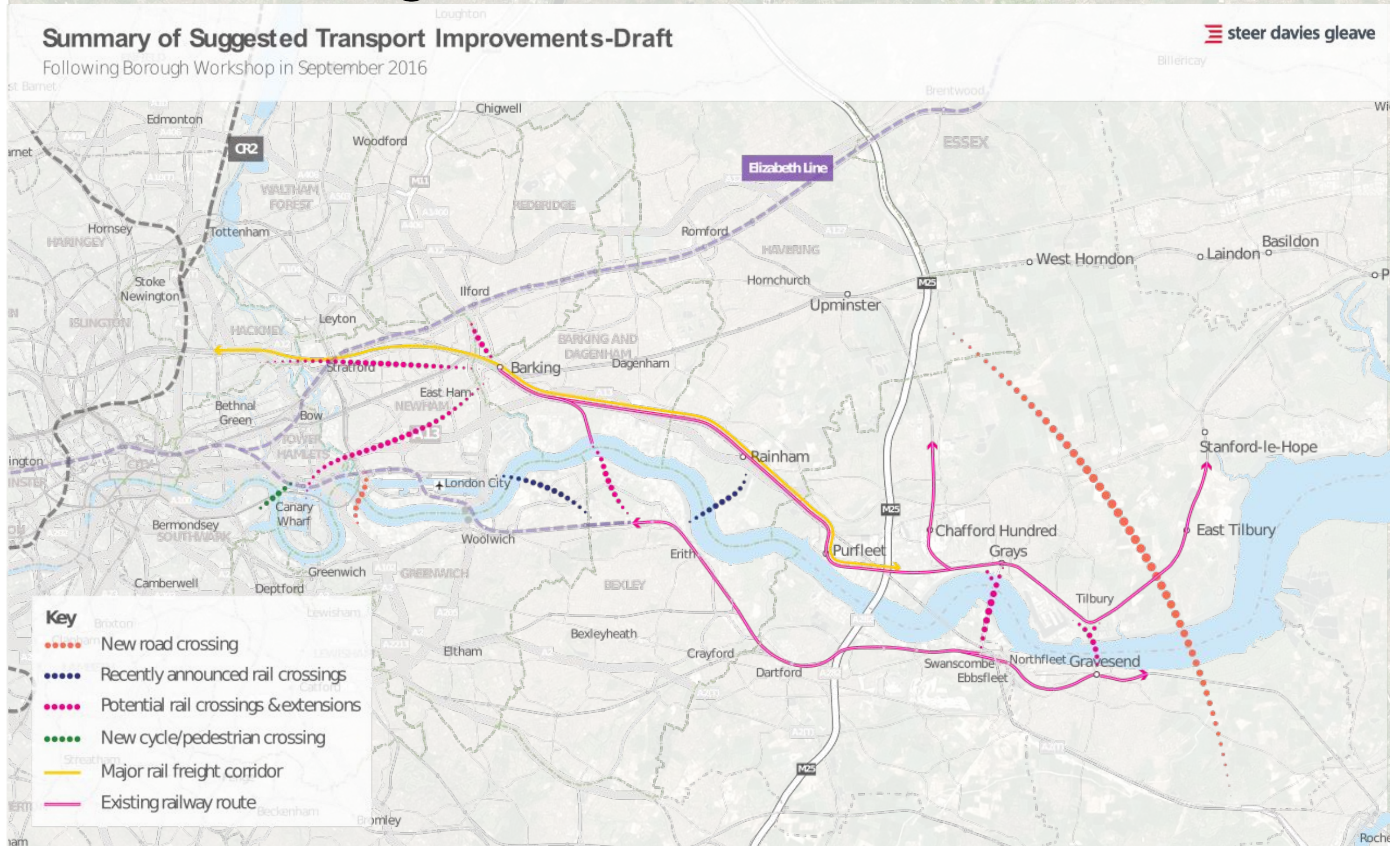


Issues



Source: Google Earth

River Crossings in East London



Future Flood Defences

The benefits of a half tide barrage would be that, like the river above Richmond half tide barrage, the tidal range would be much reduced and water levels would not drop below around half tide level. This has a number of advantages. Firstly there would always be more water in the river, the navigable width and depth would be maintained so that there would be more space for navigation.

Secondly the tidal current would be significantly reduced (by how much depends upon how the barrage sluices are operated) so lower powered vessels could be used. Zero emission electric propulsion would become a practical proposition. Rowing and sailing on the river would both be safer with reduced current speed.

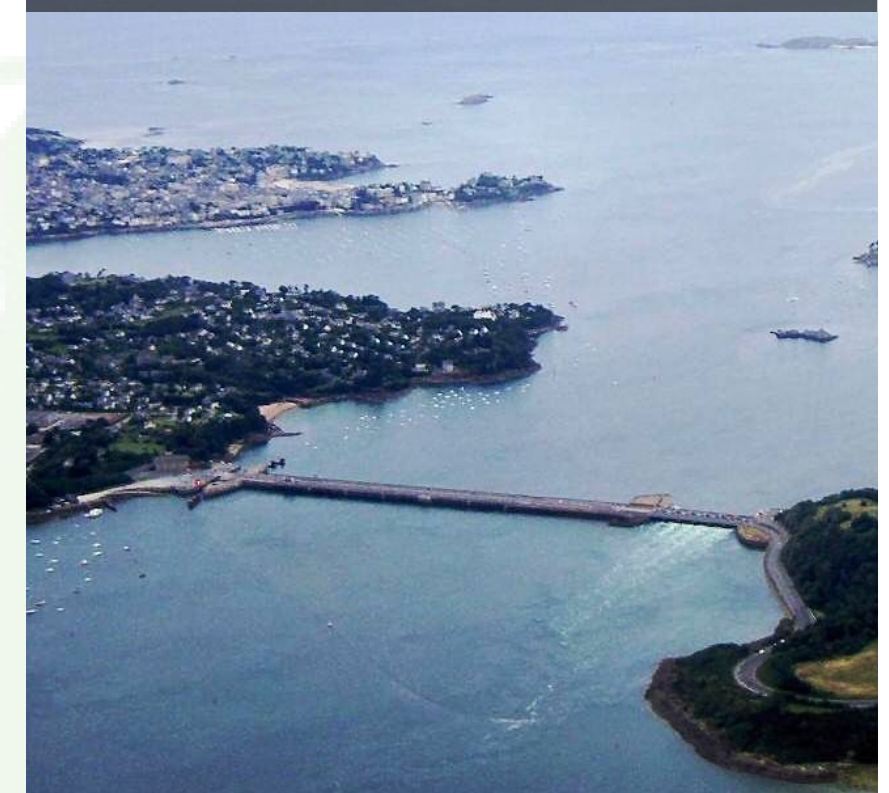
The construction of passenger piers and other berthing facilities would be much cheaper and many more locations would have the water depth for a passenger pier.

Most significantly the construction of lifting bridges in East London would become much simpler. With a retained water depth ships would not be at risk of grounding on a falling tide if a bridge failed to open. The ship could simply wait in the channel, anchoring if necessary, while the bridge was being repaired. This would be similar to ships navigating the inland waterways of the Netherlands or Germany.

A retained water level would also enable freight vessels to navigate through London over a much wider window. At present all large freight movements take place around 2 hours either side of high tide as there is insufficient water depth in the river for them at other times. This concentration of movements creates congestion and increases navigational risk. The ability to spread freight movements more widely would reduce the congestion and increase the freight capacity of the river.

Of course it's not all positive. The partial impounding of the river would alter the river's salinity making it more fresh and therefore altering its ecology. Perhaps more seriously it would also reduce the intertidal foreshore area which would adversely affect the benthic community; mitigation for this would need to be found, possibly by creating additional foreshore areas by managed retreat of the defence line downstream of the new barrage.

The Rance Tidal Power Station



The Rance Layout showing the Ship Lock



Wading birds on the Lower Thames



Source: Google Earth

Plastic Litter

There is no single solution to the problem of plastic litter in the river and a combined approach is required by the statutory authorities working together with central government, volunteer groups and the general public.

The good news is that awareness of the danger of plastic in the sea is rising. The government's introduction of a 5p charge on single use plastic bags has already had a dramatic effect; further similar initiatives need to follow. In particular there needs to be either a deposit charge or else an outright ban on single use plastic bottles.

The majority of plastic bottles in the river seem to be water bottles. London River Services have introduced a trial scheme on some of their piers where one can purchase a multi-use plastic water bottle from a vending machine.

Filling the bottle with chilled filtered water is free. The Victorians installed free drinking fountains throughout London in order to tackle the problem of drunkenness. There needs to be a reintroduction of free drinking fountains so that people don't need to carry plastic bottles of water around with them in order to have a drink of water.

Bottles and bags aren't the only problem; food manufacturers frequently use plastic packaging for their products where natural material wrapping would be a practical alternative; much of that plastic wrapping also finds its way into the river. Food manufacturers need to be made aware of the pollution their packaging causes and be lobbied to change to biodegradable alternatives.

Floating Plastic Waste



Plastic Waste Washed Up at Low Tide



Large Plastic Waste is Eroded Into Smaller Waste



Source: Google Earth

Plastic Litter

While tackling plastic litter at source is the ultimate solution it will take time and meanwhile we need to recover as much of the plastic as possible from the river. At present this is done by a combination of volunteer groups cleaning the beach areas where litter collects and the PLA's floating Passive Driftwood Collectors (PDC). The 16 PDCs are effective to a degree, they collect circa 400t of flotsam a year, but there is much flotsam that misses them and ends up on the foreshore or, worse, out to sea. A larger scale flotsam collector is needed.

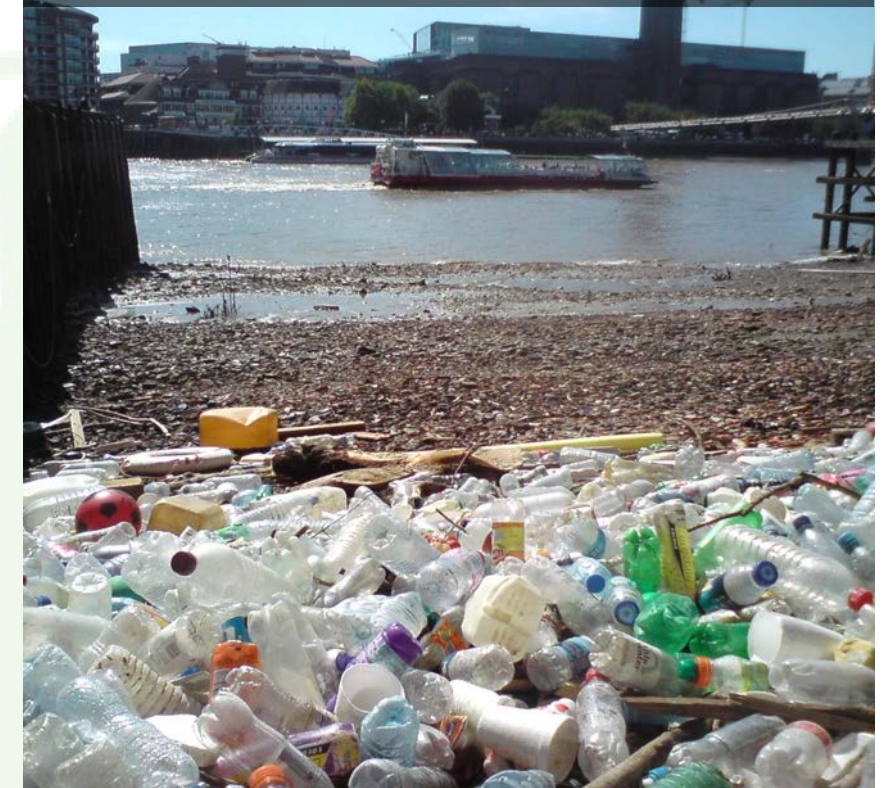
The effectiveness of a passive collector depends upon its location and size. There must be scope for experimentation with larger PDCs located in areas where flotsam concentrates, such as on the outside of bends in the river. A further possibility is mounting collectors on the non-navigable spans of the Thames Barrier.

A more efficient collector that may be worth emulating is the Baltimore Inner Harbour's Trash Wheel, a water powered flotsam remover that collects waste and loads it directly into a barge. Could this concept be adapted for the tidal Thames?

If, in the longer term, a lower Thames barrage is built then that structure should have a collection facility built into it.

Preventing plastic waste at source and collecting it from the river are two strategies but a third, educating the public, is also required. The PLA and voluntary organisations such as Thames 21 are already doing this but the volume of plastic waste in the river demonstrates that there is still much more to be done.

Food Packaging Forms 74% of Litter in the Thames



Passive Driftwood Collector (PDC) at Westminster



Baltimore Harbour Wheel Collector



Source: Google Earth

Freight Facilities in London

Currently the only regular freight handled above Greenwich is waste for export and aggregates for import, principally to concrete batching plants. Additionally there are project cargoes handled for riverside construction sites. These cargoes tend to consist of demolition waste or excavated soil for export and precast concrete units, such as tunnel lining segments, for import. Some projects such as the recent Blackfriars Bridge and Station refurbishment also bring in items such as fabricated steel sections and reinforcing steel.

A construction project does not necessarily require a wharf or jetty to handle its cargoes. If there is one nearby it may be pressed into service; if there isn't one then a temporary facility can be built. The lack of cargo handling infrastructure is not necessarily an impediment, at least not for projects large enough to warrant the construction of a temporary facility.

Permanent wharf facilities have become challenging to site in central London. This is partly because cargo handling has an environmental impact and is often not a good neighbour to a residential development. Furthermore since the river was cleaned up in the latter part of the 20th Century it no longer is odorous and it has consequently become desirable to live next to it. The result is that riverside sites are worth very much more for residential use than for cargo handling.

The London Plan's safeguarded wharf policy has attempted to redress this conflict by, in essence, devaluing certain wharf sites so that cargo operators can continue to afford to operate from them. The policy has had some success in that it has, brought at least one wharf, Peruvian, back into cargo handling use although it has taken over 14 years of negotiations, inquiries and legal action to achieve this. Other disused wharves, such as Orchard, are still mired in expensive legal disputes.

There have also been many wharves lost to cargo handling despite their safeguarded status, the list includes; Gatliff Road, Tower Wharf, Minoco, Lovells and Granite wharves. Three more safeguarded wharves, Hurlingham, Kirtling St and Middle Wharf, have been acquired by the Thames Tideway Tunnel project as construction sites. Once they have completed the project the presence of their sizeable permanent works on the sites makes it doubtful whether a return to cargo handling will be practical on these sites.

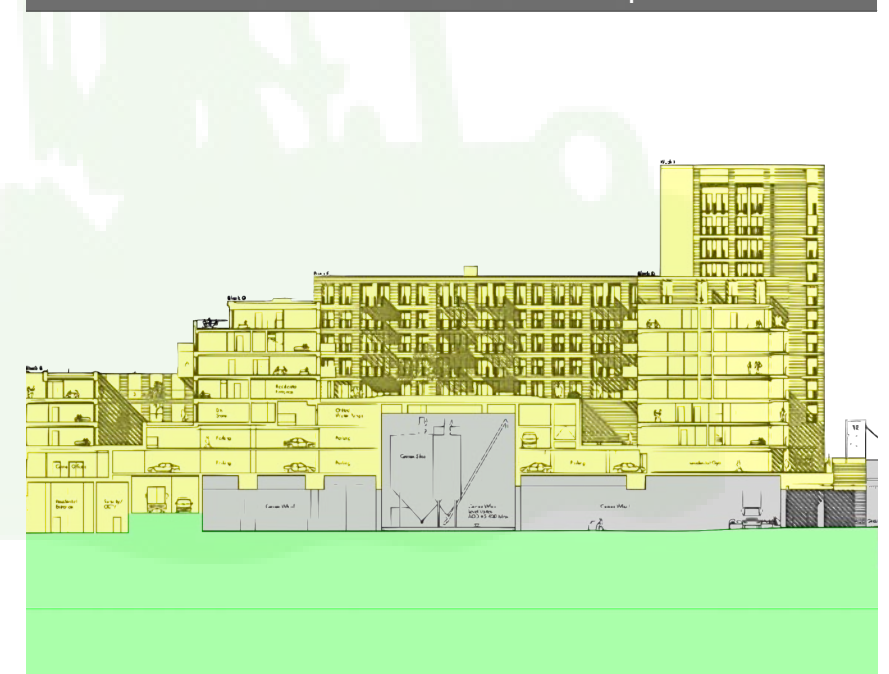
Albert Wharf Consented Scheme



Albert Wharf Existing Site



The Wharf within the Development



Source: Google Earth

Freight Facilities in London

The environmental conflict between cargo handling and adjacent residential use is one that needs to be resolved if conventional handling of bulk cargoes is to continue in central London. There are two schemes that have recently received planning consent that may show the way forward.

The Albert Wharf scheme in Fulham proposes containing the Comley's Wharf aggregate and batching plant in a reinforced concrete enclosure with residential units located above. The details of the scheme have been designed to minimise any conflict between the cargo handling and batching plant operations and the residents. The scheme is, understandably, expensive to construct but it does show how London's high land values can lead to multi-use of the land. We already do this with supermarkets which often used to be single storey but now in London invariably have other uses located above them. I believe this is also the way forward for cargo handling.

The second example is the Cringle Dock Waste Transfer Station (WTS) next to Battersea Power Station. Cringle WTS was built in the 1960s and operates by road vehicles tipping refuse into a large pit from where it is grabbed out and loaded into containers via compactor units. The station, and particularly the pit, can be odorous, especially in hot weather.

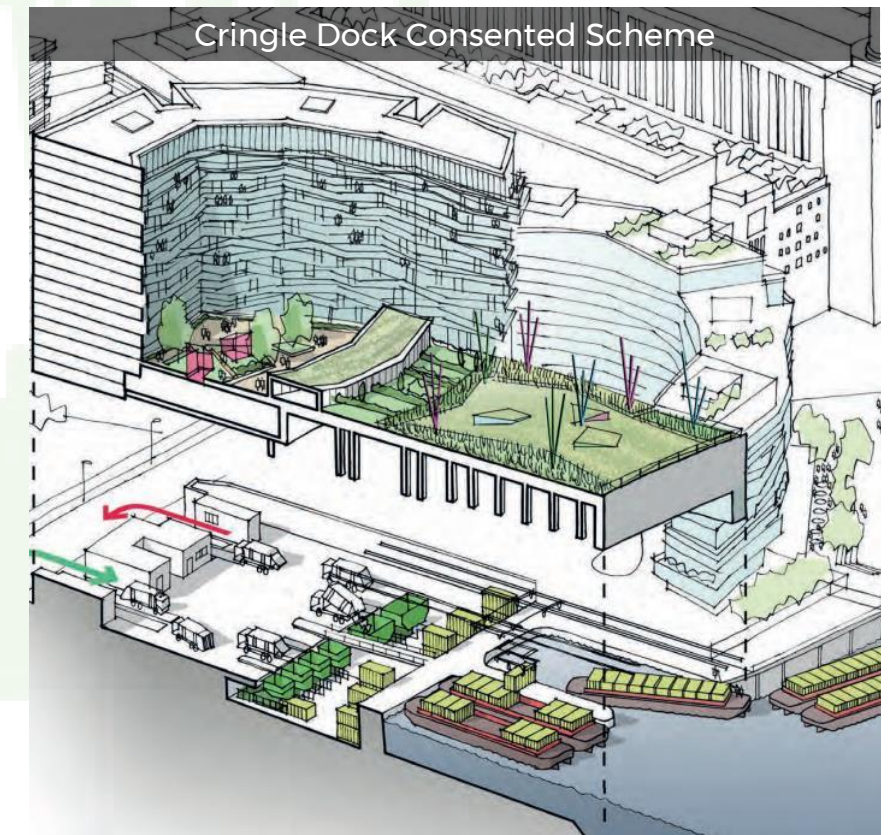
The Refuse Pit at Cringle Dock



Barges at Cringle Dock



Cringle Dock Consented Scheme

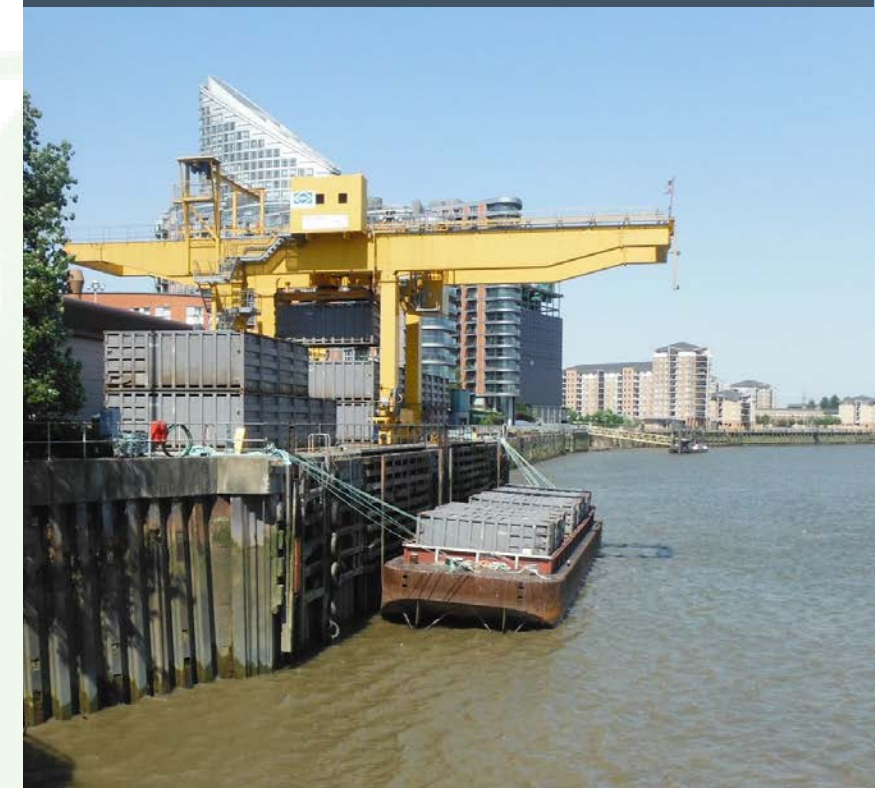


Freight Facilities in London

The redevelopment of the sites around the WTS for predominantly residential use presents a potential risk to the WTS operation; unless its environmental impact can be controlled then objections from neighbours could lead to its closure. The Battersea Powerstation Development Company and Western Riverside Waste Authority have jointly developed a scheme to resolve this conflict of uses. The scheme, which has recently been granted planning permission, involves the reconstruction of the WTS as a 21st Century facility with waste trucks directly tipping into compactors within a negative air pressure chamber. An air handling system with carbon filters will remove any remaining odour. This reconstruction is expensive and to pay for it residential development is to be located above and around the WTS.

I suggest that the examples of Albert Wharf and Cringle are the future of cargo handling in central London. Riverside land values are so high that dual use of sites with residential located above cargo handling is necessary if cargo handling is not to be priced out of the city. Industrial areas where poorly controlled cargo handling can take place generating high levels of dust, noise and odour no longer exist in central London so cargo handlers need to adopt strict environmental controls on their operations. With such measures in place there is no reason why the river can't retain most, if not all, of its current safeguarded wharves.

Northumberland Wharf Waste Transfer Station



Waste Transfer at Wandsworth



Walbrook Wharf in the City of London



Source: Google Earth

Lack of Boatyards

The Thames is undergoing a renaissance with a steadily growing passenger fleet and, driven by the TTT, a rapidly growing freight fleet. But these vessels all require maintenance and repair and the river has lost nearly all of its commercial boatyards. The Thames fleet now has to travel long distances for routine drydocking. Yards on the Medway, Solent, Humber and even in Holland are used by Thames vessel owners because there is insufficient boatyard capacity nearer home.

Travelling these long distances is both expensive and time consuming so vessels are out of service for lengthy periods. Much of the drydocking of the passenger boats is done in the winter low season and making sea passages in the winter months can involve lengthy delays awaiting a weather window. There is a desperate need for more and better boatyard facilities on the Thames with a key requirement being covered boat sheds so vessels can be repainted in winter.

The GLA has acknowledged the need for a new Thames boatyard and has put forward Albert Island, next to the King George V lock, as a site. The development of a boatyard, and associated mixed development to fund it, is currently the subject of a competition to find a development partner.

The GLA's Albert Island boatyard initiative is welcome even though the site is significantly constrained, not least by being just off the end of City Airport's runway. Even with the Albert Island boatyard there will, if river traffic growth is sustained, be a need for further boatyard facilities and a feasibility study needs to be carried out to identify suitable locations. It is not the purpose of this document to perform that study but I would suggest that the historic Convoys Wharf should be one candidate site as also would be the expansion of facilities at the PLA's Denton Wharf site.

Bay Wharf Boatyard



MSO Marine at Brentford



PLA Boatyard at Denton Wharf



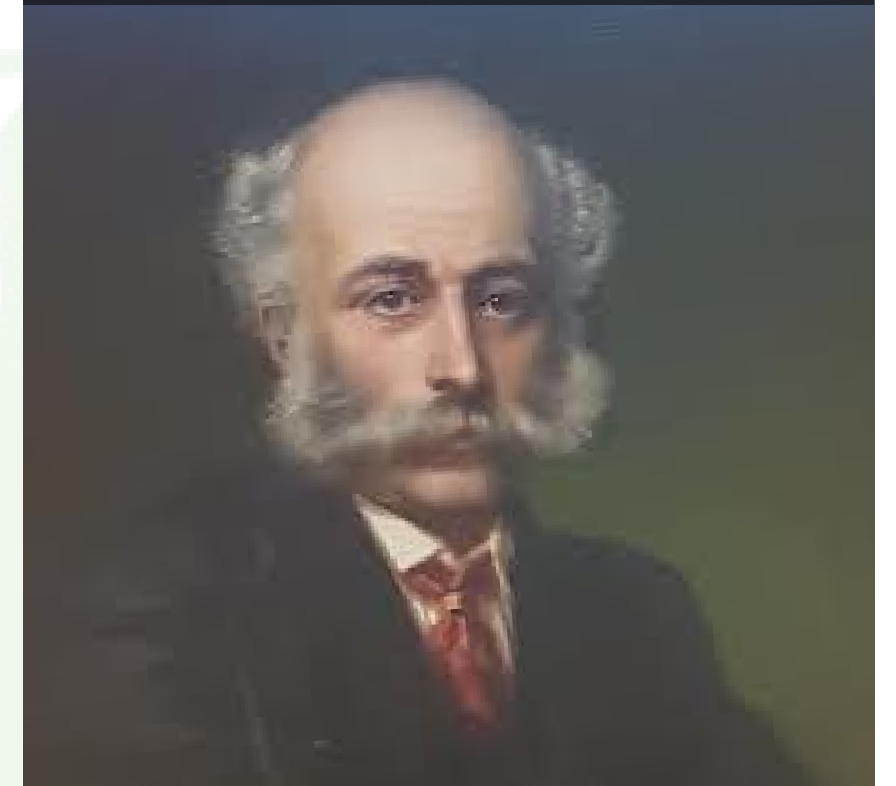
Source: Google Earth

More Passenger Piers

The location of many of London's passenger piers owes more to accident than to planning. The original core piers, many of which were planned by Sir Joseph Bazalgette when he designed the Victoria and Albert Embankments in the late 19th Century. Two other piers, namely Tower and Greenwich, are located to serve major tourist venues. Many of the rest of the piers have been funded by developers of riverside sites as Section 106 obligations. Requiring a developer to build a pier is a way of funding it but it does not necessarily end up delivering piers in the best location for riverboat services.

The tourist boats will always need to operate from piers next to the tourist hotspots and these are principally Westminster, The London Eye, Tower of London and Greenwich. The attraction of Westminster extends as far as Embankment pier, and possibly also to the privately owned Savoy pier. There are secondary tourist hotspots, or warmspots, at Millbank, Bankside and North Greenwich (for the O2) piers.

Sir Joseph Bazalgette



Greenwich Pier

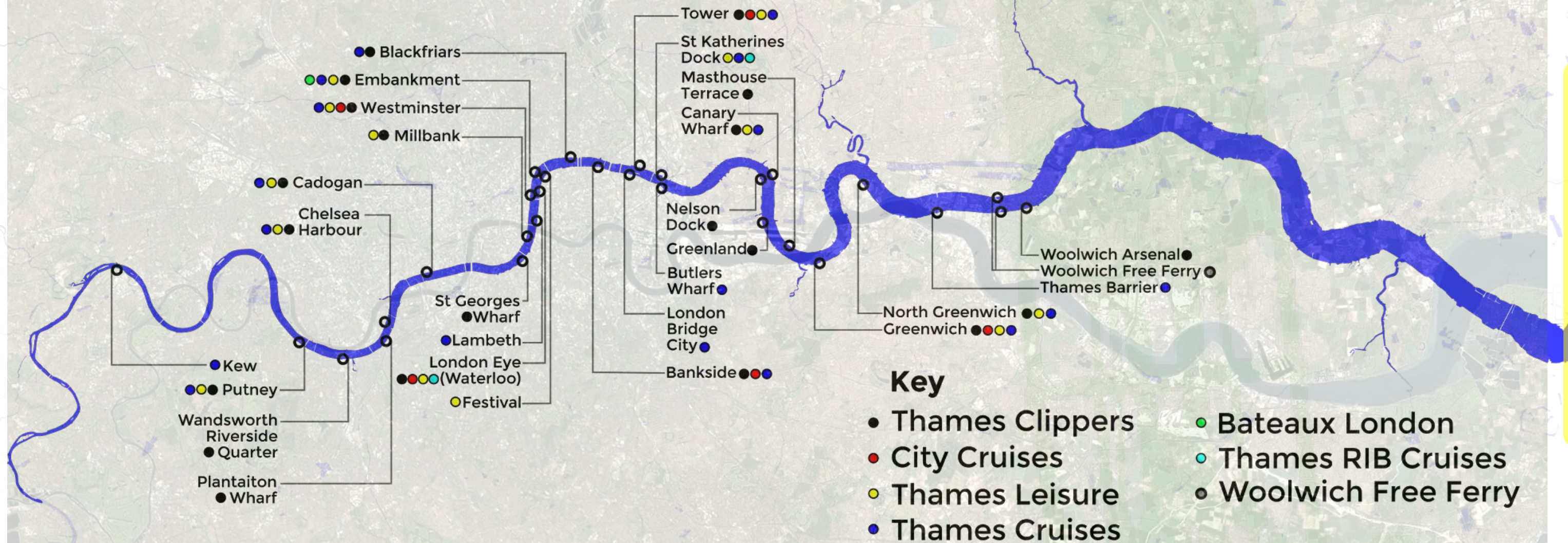


Westminster Pier



Source: Google Earth

More Passenger Piers



The position of passenger piers on the River Thames

More Passenger Piers

The rest of the piers are predominantly transport piers rather than tourist piers. The requirements for a transport pier are slightly different. They obviously do need to serve tourist destinations but it is also necessary for piers to be located close to transport interchanges and, as a corollary, transport interchanges to be located close to piers when possible. Transport piers need to be well spaced so that a fast boat service does not have to stop too frequently.

In the east of London where there are few foot crossings of the river, piers should be located to enable a zig-zag route so that the boat service also provides a river crossing service. The zig-zag route is less important in central London if a pier is located close to a bridge. There is a distinct disadvantage of river boats crossing the river in congested central London as navigational risk is increased by the boat having to travel on the 'wrong' side of the fairway (this risk is much reduced in the more open lower reaches of the river).

There has, to date, been no overall plan of where new piers should be located to best facilitate a river boat service and so we have North Greenwich Pier on the wrong side of the Greenwich peninsula. Woolwich Arsenal pier serves a housing development, not the town centre. Masthouse Terrace pier serves the south of the Isle of Dogs whereas it would better serve the east side.

There are plans for extending boat services further east and future piers will hopefully be better located, especially the ones planned for Barking Riverside, Erith and Thamesmead; although Thamesmead, a riverside development that was planned so as to turn its back on the river, remains a challenge.

Woolwich Arsenal Pier



North Greenwich Pier



Masthouse Terrace Pier



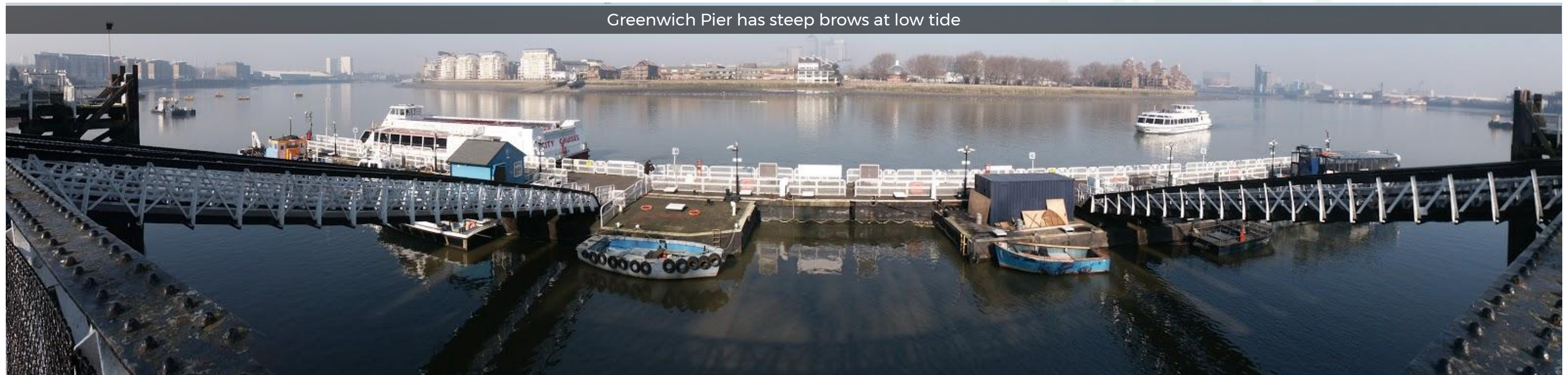
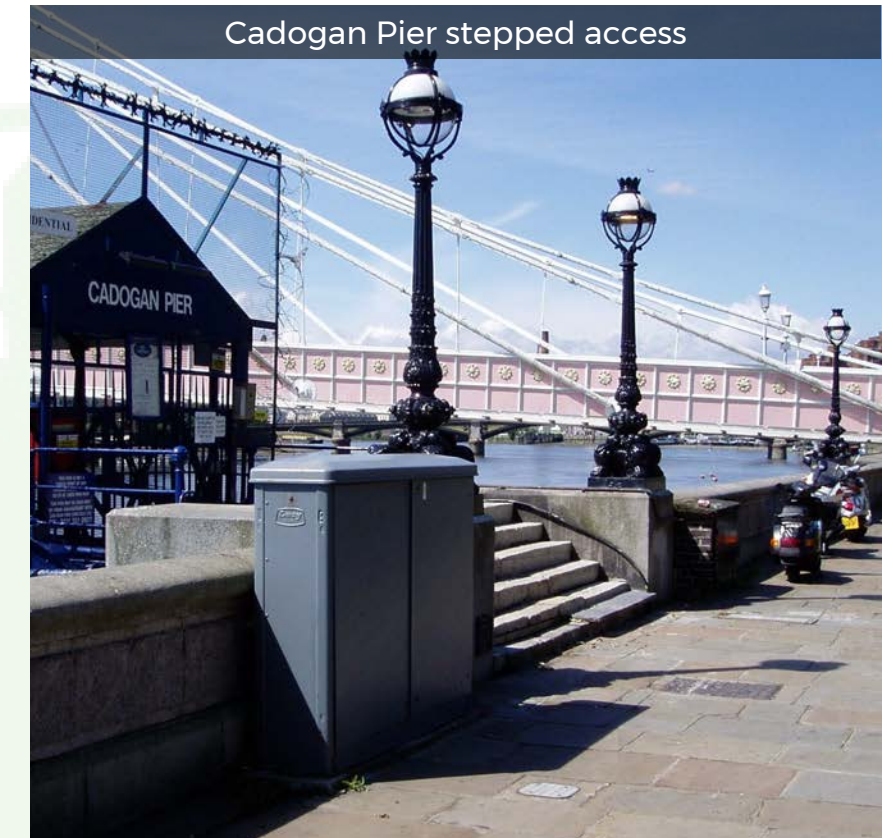
Source: Google Earth

Obsolete Infrastructure

London owes a great debt of gratitude to Joseph Bazalgette but it has to be admitted that some of the infrastructure that he and his Victorian contemporaries left for us is now past its best. Top of the list for renewal is Greenwich pier. The gateway to Greenwich World Heritage Site this pier dates from the 1880s, is moored on chains and has, at low water, steep brows. Despite the addition of a mechanical lift the pier's disabled access is poor. The pier is also not large enough for the number of boats wishing to use it. Greenwich pier should be a top priority for replacement.

The privately owned London Bridge City pier, made from a converted grain barge, also has a very steep access brow and the pier is too small for its traffic. The pier needs to be replaced. Festival pier is owned by TfL has poor disabled access and is little used, although it could attract much more traffic. There are proposals to rebuild the pier with two berths and a better access although funding for this is dependent upon the pier having additional facilities.

Privately owned Cadogan pier serves both as a leisure mooring and a riverbus pier. The main berthing pier is one of the oldest on the river and the access to it has steep steps to cross the flood defence. The pier needs improvement or replacement to bring it up to modern accessibility standards.



Source: Google Earth

Wash

Wash from passing vessels has been a source of conflict on the Thames probably for as long as mechanically powered vessels have been on the river. The main source of wash used to be tugs but today the subject of most complaints are the fast catamarans operated by Thames Clippers.

The sensitivity to wash has been exacerbated by an increase in the number of residential vessels moored on the river combined with an increase in frequency of riverbus services. The planned further increases in services, especially those up to Putney, can only be expected to increase the conflict. Measures to reduce the impact of wash have been tried at the new Plantation Wharf pier where a low sheet piled wall has been installed outside some of the residential berths; it appears to be partially effective.

However there has been little study of the wash problem on the river to quantify it or to examine how it might be ameliorated. Questions that need to be considered are how much the reflected wave from embankment walls contributes to the problem and whether additions to the frontage, perhaps in the form of ecological enhancements, might reduce reflections. Also what is the best speed for Thames Clippers? There is a school of thought that the catamarans currently being operated would generate less wash if they travelled faster so what is the optimum speed for minimum wash?

There are also means of reducing the effect of wash on vessels with gyroscopic stabilisers being perhaps the most promising device for static vessels. This type of equipment needs to be trialled on the river to see whether it could be a solution, at least for some vessels.

Wash Wall at Plantation Wharf



A Thames Clipper Fast Catamaran Underway



Washed out Campshed



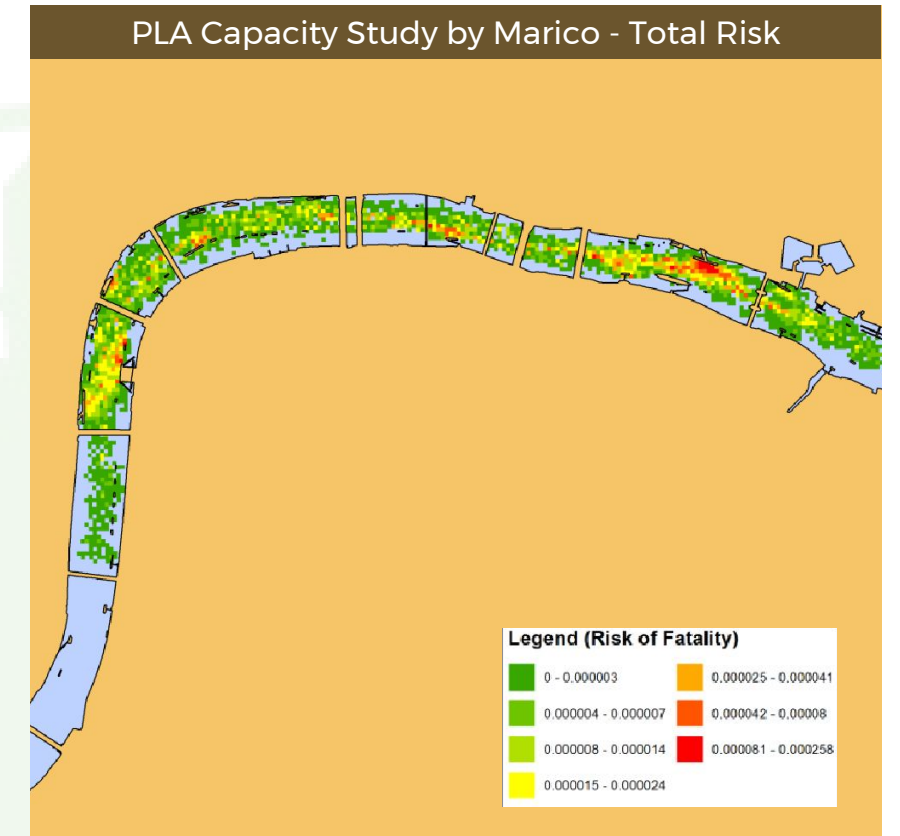
Source: Google Earth

Increasing Navigational Risk

The PLA, TfL and the Mayor of London all have policies for dramatic increases in both passenger and freight traffic through central London. The proposed increases are dramatic, a doubling of passengers and a doubling of freight tonnage. Fairly obviously such increases also involve an increase in the risk of collisions unless mitigating measures are put in place; and there are only so many mitigating measures available.

The risk of vessel collisions, either with each other or with fixed infrastructure such as piers and bridges are not negligible. Every year there are a number of such collisions although, thankfully, they do not often result in injury. However the risk of a major collision between a heavy freight vessel and a passenger vessel carrying up to 200 passengers or more is always present. And the consequence of such a contact can be catastrophic, especially if the passenger vessel is of historic design without watertight subdivision of the hull. Although the Marchioness disaster happened over 27 years ago a similar event could happen again; passenger vessels of the same design as the Marchioness still operate through central London alongside 2,000t barges.

This is not to say improvements haven't been made; the PLA deserves great credit for the significant measures it has introduced to improve safety in recent years, especially by raising the standards of training of crews on the river. The PLA has also carried out a comprehensive, and regularly updated, risk assessment of operations on the river. This, combined with the incident and near miss statistics, identifies where the risks are greatest. Top of the risk hotspots is King's Reach where a combination of a narrowing of the river, closely spaced bridges which restrict vision and passenger piers which require cross river manoeuvres produce the greatest number of contacts and near misses.



Source: Google Earth

Increasing Navigational Risk

The second high risk area is the Upper Pool of London when a cruise ship is berthed alongside HMS Belfast. The berthed cruise ship not only occupies half of the fairway but vessels servicing the cruise ship have to cross the river to the cruise terminal on Tower pier. Tower pier is one of the busiest piers on the river and the additional risk created by the narrowed channel and cross river movements turn this into one of the highest risk areas on the river.

Ideally cruise ships should not be berthed alongside HMS Belfast; or if they are to be berthed there then HMS Belfast should be moored elsewhere. Both these remedies are probably unachievable, at least in the short to medium term. However the cross river traffic could be more easily prevented by providing cruise terminal facilities for processing passengers and baggage on the south side of the river. These facilities could be located in a rebuilt London Bridge City pier, or in a new pier outside City Hall, or by way of a floating facility moored astern of HMS Belfast. The PLA's Welcome cruise terminal barge could even be used for this.

With the imminent Thames Tideway Tunnel works a dramatic increase in freight will come over the next year or two; the Upper Pool cruise ship risk ought to be addressed in a similar timescale.

There are other measures that could be adopted to reduce the risk of conflict between freight and passenger vessels. Perhaps the most obvious to consider is to confine heavy freight movements to the night when passenger movements are the least. However such a measure is unlikely to be popular with freight operators as it would increase their costs. With increasing volumes to be transported it may also be necessary for some freight operations to take place on both day and night tides.

Cruise Ship Silver Wind Alongside The HMS Belfast



Commercial and Tourist Traffic on the Thames



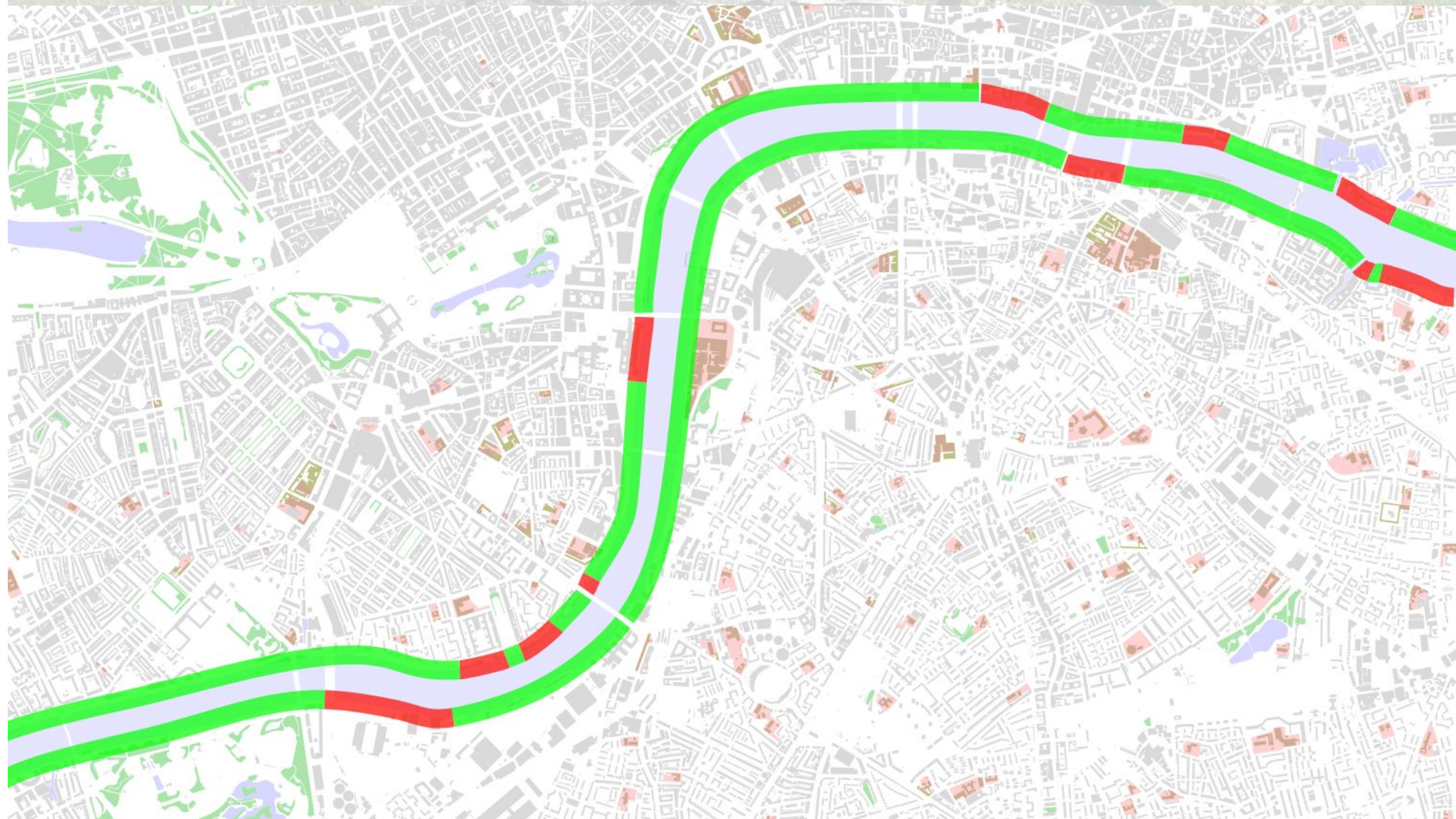
Thames Event Traffic - Special Navigational Risks



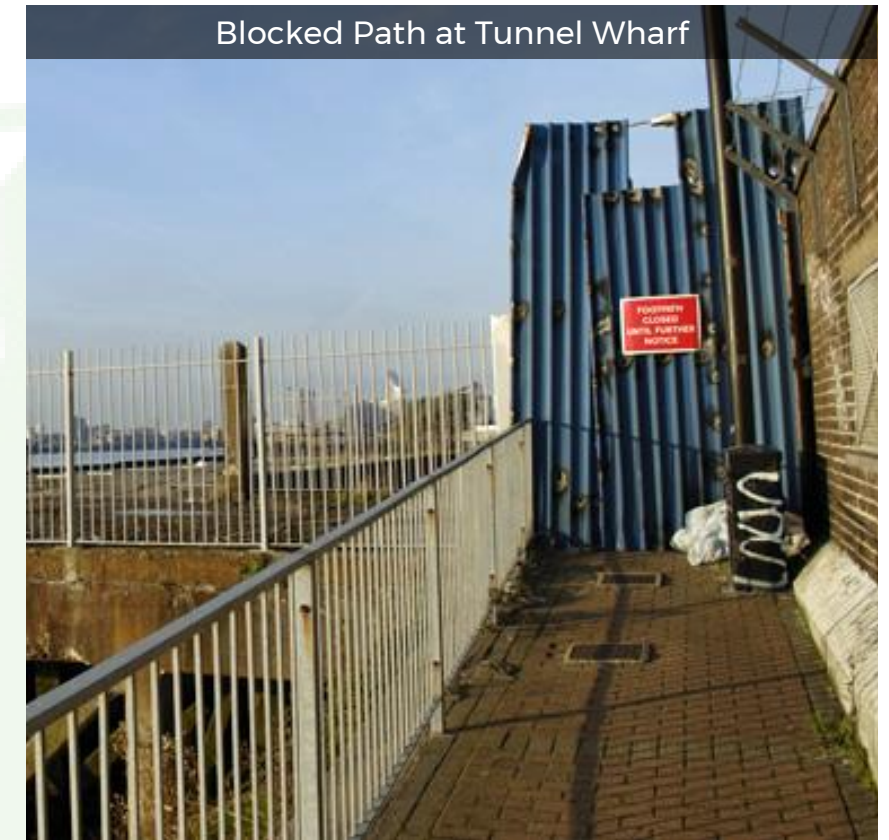
Discontinuous River Path

The London Plan and all riverside boroughs have for many years acknowledged that the Thames path is a major and valuable public asset. Achieving a continuous path does however face challenges with the principal difficulties being creating a path across operational wharves and some areas of riverside where buildings sit right up to, or even on, the river wall.

The most difficult stretch of frontage, where a riverside path is needed the most, is in the City of London where the path is often very narrow and repeatedly doubles back away from the river. The City have looked at various options for improving the path but it may take the redevelopment of a number of riverside sites, which could take decades, before the City has a joined up riverside walk.



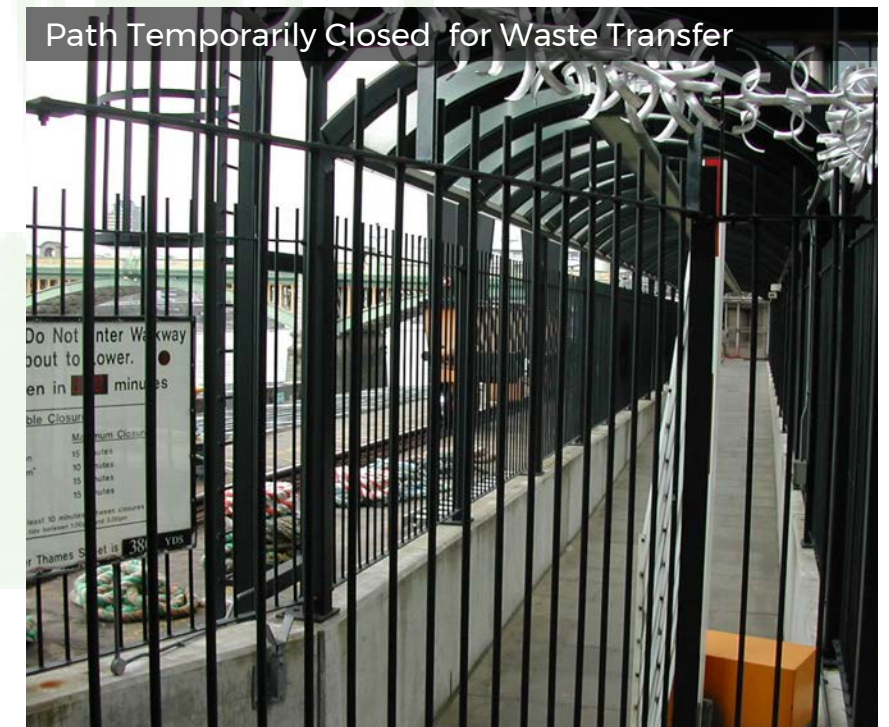
Blocked Path at Tunnel Wharf



Accessible Path near the London Eye



Path Temporarily Closed for Waste Transfer



Source: Google Earth

Heliport in Wrong Location

The London Plan limits the number of Heliports in London to one. There is a good case for thinking that the one we have at Battersea is too small and in the wrong location.

Too small because it cannot accommodate all the aircraft which wish to use it and cannot provide covered storage or fuelling facilities for aircraft as a result of which the Metropolitan Police helicopters do not use it (they use Elstree aerodrome instead). There is no prospect of enlarging Battersea Heliport as it is closely hemmed in by buildings.

It is in the wrong place because it is surrounded by residential buildings and is in west London whereas the business centres are in east London. While next to the river the heliport does not, and cannot readily have a pier since the water depth is not adequate. Helicopter passengers whose destination is the City or East End have to either travel onward by car to Plantation Wharf pier for a boat or else travel by car to their destination.

If the Heliport were relocated to the east, say in Silvertown, then it could be separated from residential developments, could be large enough to have aircraft hangers and workshops (with associated jobs), could have better refuelling facilities and have a river pier for fast transfers to Canary Wharf, the City and the West End. An added bonus could be fewer helicopter movements over central London. Relocation would enable the current Battersea site to be redeveloped which could pay for the move.

Landing at London Heliport Viewed from Upstream



London Heliport, 1960, little changed in 57 years



London Metropolitan Police Helicopter G-MPSB



Source: Google Earth

Derelict Structures

The last item on this list of Issues is the number of derelict structures on the river. These structures are a legacy of the river's industrial past. Many of the structures are disused jetties in varying states of decay. Notable examples of advanced decay can be found at Deptford, Thamesmead and Barking.

But dereliction is present in the heart of London as well, At Queenhithe there is a field of timber pile stumps which cover at high tide and could impale an unwary vessel. East of Cannon Street Bridge the campshed in front of the river wall is collapsing which threatens the stability of the river wall. Similar undermining has recently threatened the stability of a river wall in Limehouse requiring emergency works.

In the case of old jetties it can be difficult finding a new use for them once the need for cargo handling has ended. Sometimes it is possible to demolish them if a site's redevelopment can fund it, as was done at Wandsworth Riverside Quarter where two oil handling jetties were taken down and replaced by a pier and moorings. But demolition is expensive, especially if the jetty is substantially constructed as many of them were.

Sometimes a new use can be found. The Fulham power station jetty was converted to an ecological education centre but with a temporary use as a marketing suite for the Fulham Riverside development.

As part of the Millennium redevelopment of Greenwich Peninsula Greenwich Yacht Club's clubhouse was relocated into a beautifully designed building constructed on a disused jetty. Other jetties have been converted to wildlife reserves although they still require ongoing expenditure on maintenance if they are not to eventually fall apart.

Emergency Works at Limehouse



Pile stump obstructions



Greenwich Yacht Club



Source: Google Earth

Derelict Structures

A constraint on finding new uses for derelict jetties is the requirement of the London Plan for any development in the river to be for a river-related use. Yacht Clubs and ecological centres pass this test but restaurants have been refused. A recent one that did slip through the rule is the Upper Deck Bar constructed above the bankseat platform for HMS Belfast. It is to be hoped that this example may herald a more flexible approach by the planners.

Fulham EcoJetty Office and Entrance



Fulham EcoJetty from the North East



The Upper Deck Bar at HMS Belfast



Source: Google Earth



The Vision

So what should a Vision for a river consist of? Well as stated in the Introduction a vision should be more than a business plan, more than growth of what is currently done. A vision needs to address the issues that the river faces, and even with the selected twelve issues detailed here that is quite a task.

But a vision, like a plan has to be flexible, not everything is achievable and circumstances change, especially over a period of 20 years (as considered by the PLA) or more. So where do we start? The answer to that has to be to start with the issue that is likely to have the greatest effect on the river, even though its implementation is still 20 years or so away; London's future flood defences and the successor to the Thames Barrier. We need to start planning for them now because the resolution of a number of other issues are dependent upon the flood defence decision.

It seems inconceivable that at the end of the Thames Barrier's life there will be a return to a sole reliance on river walls to protect London from flooding. I believe there will have to be a new barrier and that it will be constructed further downstream, most likely in Long Reach in order to gain maximum benefit without unduly affecting shipping.

The principal consideration is whether the new barrier is just a storm surge barrier or a barrage with locks and power generation turbines that is capable of retaining part of the tidal range. A power generating half tide barrage, like the one at La Rance in France, opens many attractive opportunities.

New bridge crossings in east London can be low level and opening with waiting zones or lead-in structures for ships wishing to transit. Low level bridges would be high enough to permit normal river traffic but low enough to facilitate walking and cycling.

Additional passenger piers are required both in the east but also in central London in order to minimise the need for vessels to cross the river. Riverbus vessels would call at north side piers when inbound and south side piers outbound. Piers located next to bridges facilitate crossing the river.

With the tidal range reduced by a barrage many more sites will have sufficient water depth for a pier. Additionally new piers can be located closer to the river's edge leaving more space for navigation. Access brows can be shorter with a reduced tidal range facilitating disabled access and making pier construction significantly cheaper.

Barking Creek Barrier



The Thames Barrier



Flooding at Erith in 1953



Source: Google Earth

The Vision

A half tide barrage would enable riverbus services to be extended west of Putney to Hammersmith and beyond. If the barrage retained water at mid-tide at Long Reach the water level at Brentford would be around a metre above current mean low tide level.

With a reduced tidal range and corresponding reduced current velocity in the river vessels will not need to be as powerful since they will not need to be able to push over a tide of up to 4 knots. Lower powered vessels with reduced carbon emissions will become practical. Rowing on the river will become safer and more practical without strong tides to battle. Electric vessels will become a practical possibility.

A retained water level will provide a wider channel for navigation reducing vessel density and thereby reducing navigational risk. Additionally freight movements would no longer be constrained to the period either side of high tide. Many freight movements would be able to operate at any time of day thereby reducing the high tide congestion and reducing navigational risk.

Perhaps most exciting is that it would open up the possibility of new types of freight use. At present, with the exception of project cargos, all freight that is shipped in or out of a London wharf travels by road to or from that wharf. A retained water level would enable goods to be brought into the city by water and sold direct to consumers from barges, as is done from waterways in other cities such as Amsterdam or Venice. Where could these floating markets be located? At Bankside, off Gabriel's Wharf and the safeguarded Middle Wharf in Nine Elms could all be good locations. Some infrastructure would need to be provided for mooring and to provide services and safe access but a retained water level makes this provision much simpler.

By the time the Thames Barrier is replaced I would hope that the problem of plastic waste in the river will have been solved by a combination of reduction at source and public education. In the event that the problem persists the replacement structure should have flotsam collection facilities designed into it preventing the waste from reaching the sea.

And what would become of the Thames Barrier? Well the piers would make good supports for a new lifting bridge to replace the Woolwich Ferry.



Rowing on the Thames



A Solar Electric Ferry



Floating Market in Venice

Source: Google Earth

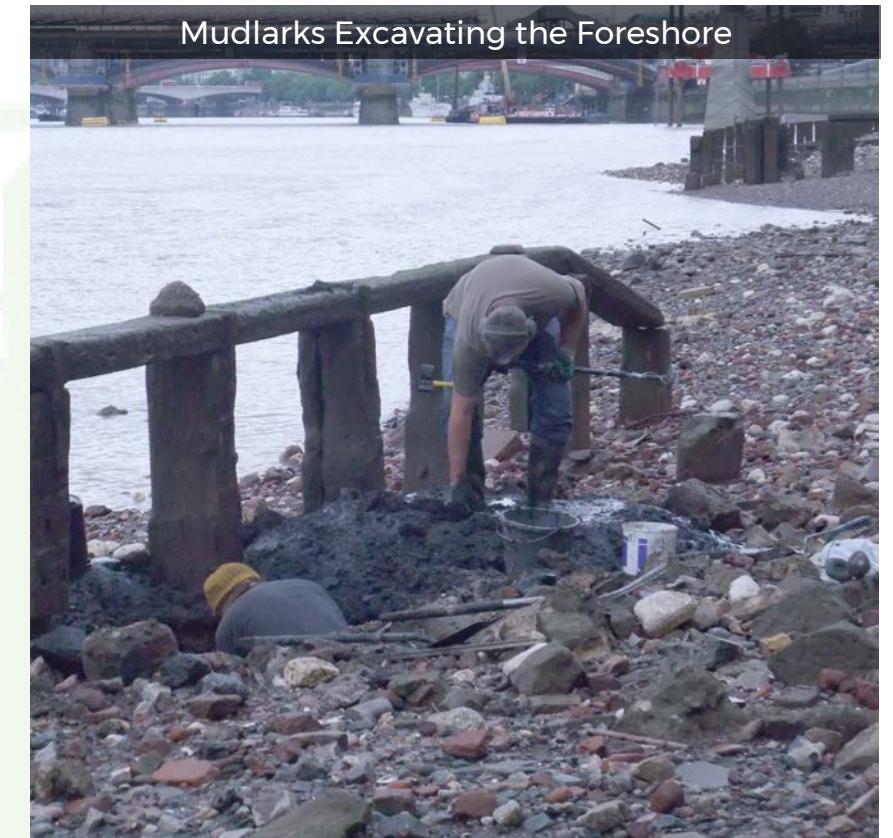
Challenges

Any major scheme with benefits also has associated disadvantages and so it would be with a half tide barrage. The principal disadvantage would be a change in the river's ecology, a significant area of intertidal foreshore would become subtidal. There could be mitigation by creation of new intertidal areas downstream but they would not be in the same location as the altered habitats.

The mudlarks who search the Thames foreshore for finds would be the most disadvantaged by impounding the river; they would only be able to access the lower foreshore on the infrequent occasions that the tide was allowed fully out.

Wash problems may be exacerbated by having vertical boundaries to the river present more of the time. However the removal of the need for high powered vessels to travel fast over an adverse current may mitigate wash nuisance. In sensitive locations, essentially where there are houseboats, measures to reduce reflected waves may be required.

The greater attractiveness of the river with reduced current speed is likely to increase recreational use of the river and that could produce increased conflict with commercial users.



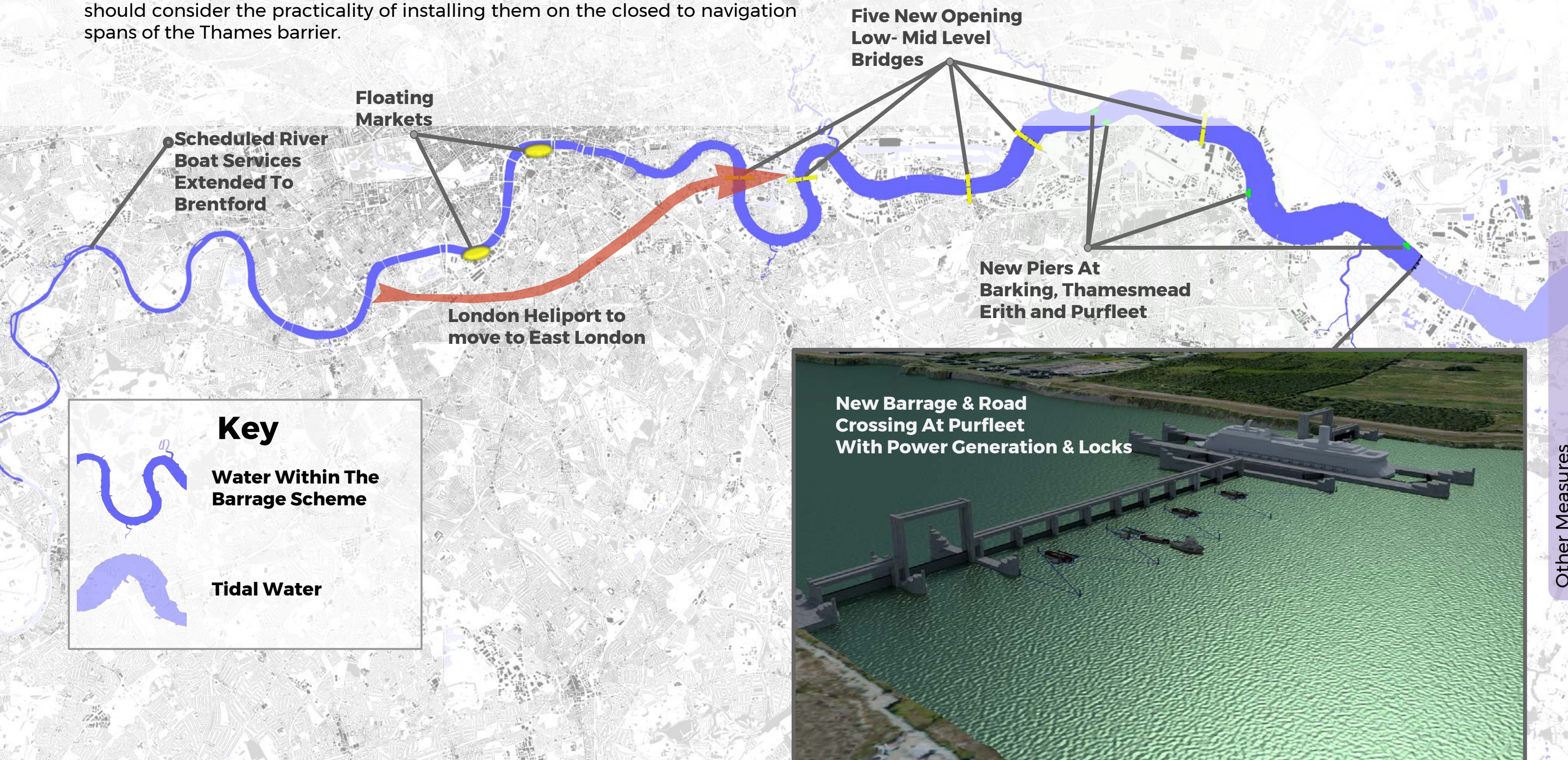
Source: Google Earth

The Vision Plan - West

A half tide flood defence barrage is not a solution to all the twelve issues I have identified and although it is a good start there does need to be more. A barrage has no influence on the boatyard problem. Hopefully the GLA's Albert Island initiative will solve the problem but if not then a comprehensive site selection process is required.

Larger scale passive collectors for plastic should be trialled. A feasibility study should consider the practicality of installing them on the closed to navigation spans of the Thames barrier.

Disused structures in the river should be dealt with first by adopting a more permissive attitude to what constitutes a 'river related use'. The removal of structures that are clearly beyond reuse should be able to be done as an environmental mitigation measure for other development work within the river.



The Vision Plan - East

Interim measures to reduce navigational risk should be considered. The cruise terminal for the Upper Pool should be located on the south side of the river, perhaps using the Welcome barge as an interim measure. Freight should be moved at night as much as is practical.

A new pier (Blackfriars South) should be provided opposite the new Blackfriars pier for eastbound Thames Clipper services. The current Oyster card charge that is imposed on pedestrians walking from one end of Blackfriars Station Bridge to the other should be removed.

Finally, and most importantly, the ancient passenger vessels without watertight subdivision of their hulls must have their grandfather rights removed so that they can no longer carry passengers on the central London reaches of the Thames.

**New Barrage & Road Crossing At Purfleet
With Power Generation & Locks**

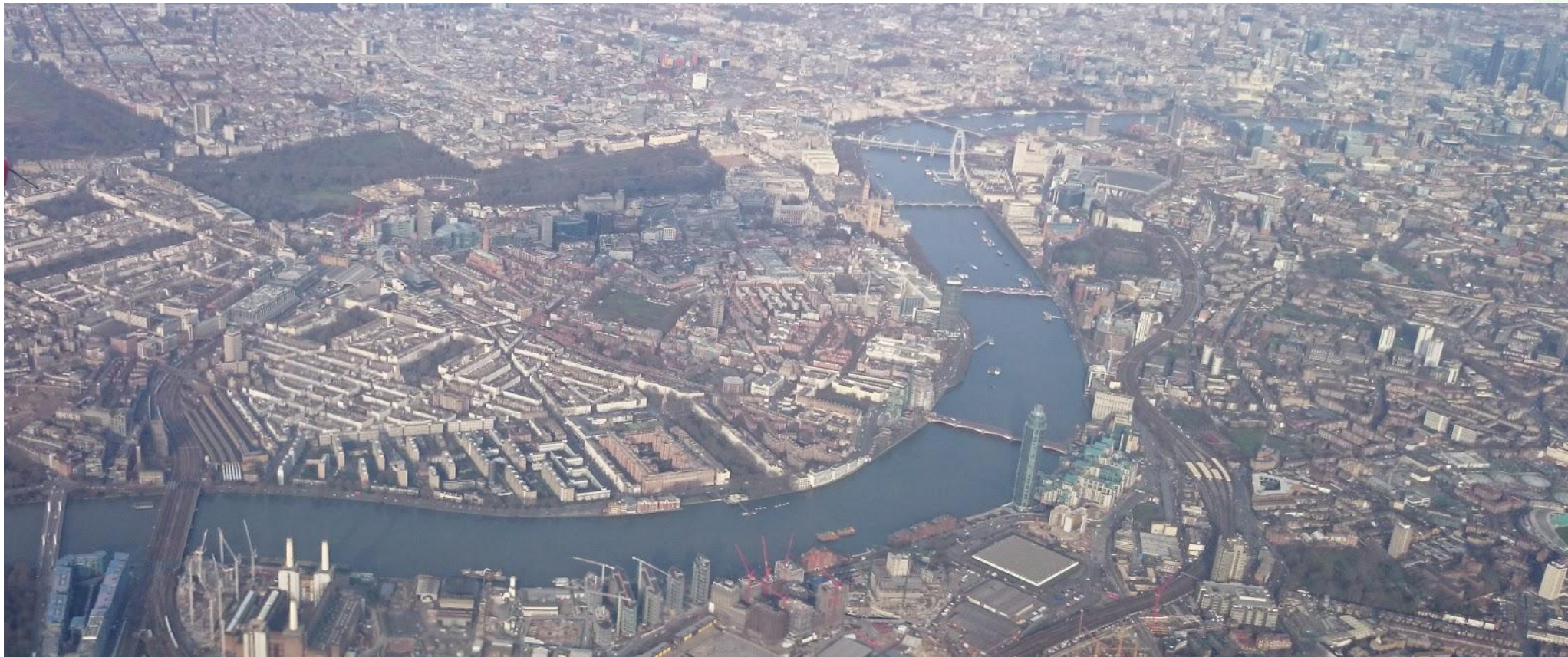
**Lower Thames Crossing
(High Bridge or Tunnel)**

Key

 **Water Within The Barrage Scheme**

 **Tidal Water**

 **Candidate Areas For Creation Of New Intertidal Zones**



The Vision

Source: Google Earth

About The Author

Tim Beckett

Director, Beckett Rankine

Tim Beckett's relationship with the river Thames started in childhood when he learnt to sail from Erith Yacht Club. Trips were mostly downriver with Holehaven and Stangate Creek on the Medway being favourite weekend destinations.

Back in the 1960s the river was not only very busy with freight traffic it was also filthy, the yachts at Erith became coated with a brown oily film within a week or so of being painted. Dire warnings were given to children about the perils of falling in the water. The one advantage of the appalling water quality was that antifouling paint was never needed as nothing lived in the water.

After qualifying as a civil engineer from King's College, London, Tim's first job was as site engineer on the raising of the Thames tidal defences through Greenhithe and Gravesend. A spell in local government followed until he co-founded the marine civil engineering consultancy Beckett Rankine in 1986. Since then Tim has worked regularly on the tidal Thames having being responsible for designing over 150 projects including 15 new passenger piers.

During his career Tim has seen dramatic changes in the Thames; most, but not all, for the better. The river continues to be modified and adapted as London itself endlessly develops. Today the river faces a new set of demands from the city it supports, from crossings in the east, future flood defences and ever more users taking to the water in all sorts of craft.

While a number of visions for the future of the Thames have been published there has been a tendency for the visionary ones to be undeliverable and the deliverable ones to be short on vision. Can a visionary vision be deliverable?



Source: Google Earth

References

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2. [The London Plan - Mayor of London 2016.](#)
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5. [Assessment of Vessel Traffic Capacity in Central London - Marico 2016](#)
6. [Thames Gateway Parklands Vision - Terry Farrell 2008.](#)
7. [Terry Farrell - Six new low level bridges 2016.](#)
8. [Food Packaging Responsible for 74% of litter found in the Thames](#)
9. [Baltimore Inner Harbour Trash Wheel](#)
10. [Greenwich Yacht Club Clipper Wash Investigation](#)
11. [La Rance Tidal Power Plant - Lessons Learnt](#)
12. [Thames Museum - Mudlarks and their finds](#)

Source: Google Earth

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Specific Images:

Page	Description	Link to original document or web page
5	Extracts from PLA’s Thames Vision	The PLA’s Thames Vision Document
7	Gallions Reach High Level Bridge, Proposed Bridge Locations	“Gallions Reach and Belvedere river crossings Consultation report and responses to key issues raised March 2016” by Steer Davies Gleave for TfL
7	Removing Litter from the Thames shore	From the Thames 21 http://www.thames21.org.uk website
11	Proposed Rotherhithe Bridge Illustrations	Rotherhithe Bridge - reForm Architects and elliotwood
11	Proposed Belvedere Bridge	“Gallions Reach and Belvedere river crossings Consultation report and responses to key issues raised March 2016” by SDG
12	1960’s proposal for a Barrier at Woolwich	River Thames - Removable Flood Barriers - A H Beckett
15	River Crossings in East London	
16	The Rance Tidal Power Station	Mediawiki Commons
16	Wading birds on the Lower Thames	http://www.rspb.org.uk/community/wildlife/b/notesonnature/archive/2017/06/26/the-state-of-the-uk-s-birds-2016.aspx
17	All three photographs	The Thames 21 Website
18	Food Packaging Forms 74% of Litter in the Thames	The Thames 21 Website
18	Baltimore Harbour Wheel Collector	http://baltimorewaterfront.com/healthy-harbor/water-wheel/
19	Albert Wharf Consented Scheme	Housing Design Awards - 2016 Shortlisted Schemes
19	The Wharf within the Development	Hammersmith anf Fulham Planning Application Search - Recoloured for clarity
20	Cringle Dock Consented Scheme	Wandsworth Council Planning Applicaiton Search
28	“PLA Capacity Study by Marico”	Assessment of Vessel Traffic Capacity on the River Thames in Central London, PLA and Marico Marine - click to download
31	London Heliport in 1960, little changed in 57 year	Phillip Capper via Mediawiki Commons

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